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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/563,495 | 01/04/2006 | Malcolm David Macleod | 05-1094 | 8270 |
| 20306 | 7590 | 12/10/2008 | | |
| MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP | | | EXAMINER | |
| 300 S. WACKER DRIVE | | | NGUYEN, NG A X | |
| 32ND FLOOR | | | ART UNIT | PAPER NUMBER |
| CHICAGO, IL 60606 | | | 3662 | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | |
|------------------------------|--------------------------------------|---|
| Office Action Summary | Application No. 10/563,495 | Applicant(s) MACLEOD, MALCOLM DAVID |
| | Examiner NGA X. NGUYEN | Art Unit 3662 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 28 August 2008.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 9,18 and 19 is/are allowed.
- 6) Claim(s) 1-8,10-17 and 20 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 04 January 2006 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____
- 5) Notice of Informal Patent Application
- 6) Other: _____

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim 1-8, 11-17 & 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyoshi (6281840) in view of Schantz (6950064).

With regard to claim 1, 10 & 20, Miyoshi discloses:

- A plurality of antennas (see column 3, lines 20-23).
- Determining individual antenna signal strengths (see 3, lines 62-65)
- Determining at least one emitter bearing from antenna signal strengths (see column 3-4, lines 66-8).

Schantz discloses:

- Combining for deriving combined antenna signal strengths by forming combinations of 1st and 2nd antenna signals are in two sets with signals in one set having a non-zero phase difference relative to signals the other set (see column 9-10, lines 55-63).
- Determine at least one emitter bearing using the individual and combined antenna signal strengths measured (see column 10-11, lines 55-34)

It would have been obvious to modify Miyoshi by incorporating the teaching of Schantz's combination to combine antennas' signals so as the system is enable to determine an emitter bearing.

With regard to claim 2-3 & 11-12, Schantz teaches determining emitter bearing is arranged to derive covariance matrix elements from antenna signal strengths and a relationship between antenna signal strengths and emitter bearing (see column 3-9, lines 65-54).

With regard to claim 4-5 & 13-14, Schantz teaches the relative phase difference is in the range 30-120 degrees, (see Fig.4).

With regard to claim 6 & 15, Schantz teaches combining antenna signals with equal gain magnitude and with or without equal phase (see column 11-12, lines 34-28).

2. Claim 7-8 & 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyoshi and Schantz as applied to claim 1 above, and further in view of Margerum (4481519).

With regard to claim 7 & 17, Margerum teaches that the combining incorporates phase shifting switch-able into and out of an antenna signal path (see column 4, lines 6-38). It would have been obvious to modify Miyoshi by incorporating the teaching of Schantz's and further the teaching of Margerum's switch-able in order to control in and out of signal path.

With regard to claim 8, Margerum teaches that the combining incorporates an adder having two inputs both switch-ably connected to individual signal paths extending to respective antennas (see column 6, lines 45-51).

Allowable Subject Matter

3. Amended claim 9 & 18-19 are allowed..

Response to Amendment

4. Applicant's arguments with respect to amended claims 1-8, 11-17 & 20 have been considered but are moot in view of the new ground(s) of rejection.
5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NGA X. NGUYEN whose telephone number is (571)272-5217. The examiner can normally be reached on 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TARCZA H. THOMAS can be reached on (571) 272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NGA X NGUYEN
Examiner
Art Unit 3662

NXN

/Thomas H. Tarcza/
Supervisory Patent Examiner, Art Unit 3662